Varun Jose Madanu

Albany, NY ∘ +1 518-596-4160 ∘ varunjosemadanu@gmail.com ∘ LinkedIn ∘ Portfolio

PROFESSIONAL EXPERIENCE

NYS Department of Transportation 06/2024 - 05/2025
Data Analyst Albany, NY, USA

- Achieved 70% improvement in reporting efficiency by building automated ETL workflows using Python, SQL, Airflow, and Power BI, enhancing data readiness for cloud migration and analytics.
- Reduced manual reporting by 6+ hours weekly by orchestrating CI/CD pipelines with Jupyter, Git, and Power Query, aligning with DevOps standards.
- Developed cloud-integrated dashboards using Tableau and SQL Server, and cutting decision latency by 3+ hours/week.

Cognier Insights 09/2022 - 06/2023
Full Stack Developer Hyderabad, India

- Engineered a scalable microservices-based retail app using ASP.NET Core, Angular, and SQL Server, increasing user satisfaction by 30%.
- Implemented a customer churn prediction model using Python and scikit-learn, improving retention strategies by identifying high-risk users based on engagement and transaction data.
- Integrated churn insights into the admin dashboard, automating alerts and visualizing customer risk trends using Chart.js and Power BI.
- Applied OAuth2, JWT, and SSL to secure APIs; managed codebase via Git & Agile using JIRA and conducted testing using XUnit, Karma, and Jasmine.

EDUCATION

University at Albany, SUNY New York, USA
Master of Science, Computer Science 08/2023 - 05/2025
Coursework: Computer Vision, Algorithms, Theory of Databases, Natural Language Processing, Machine Learning.

Kommuri Pratap Reddy Institute of Technology and Science, JNTUH Hyderabad, IND
Bachelor of Science, Computer Science 08/2019 - 05/2023
Coursework: Operating Systems, Network Security, Image Processing, Machine Learning, AI, Distributed Systems.

PROJECT EXPERIENCE

AI-Powered Tourist Place Recommender |FastAPI, MiniLM-L6, Transformers, cosine, NumPy, Haversine, BigQuery

- Built a full-stack AI-driven location recommender using FastAPI, Google BigQuery, and SentenceTransformers to suggest tourist spots based on semantic similarity, geolocation (Haversine), and user interest. Integrated Google Maps APIs (Geocoding, Directions) with a responsive ASP.NET Core frontend, featuring dynamic filtering, search, and real-time geolocation.

FinanceMate | Google Cloud (Terraform, App Engine, SQL)

- Built financial prediction modules using XGBoost on GCP, reducing MAE by 22%. Tracked experiments with Weights & Biases and DVC, enabling 3x faster iteration. Automated reproducible deployment via Terraform and launched services on App Engine.

Mobile Recommender | AWS (EKS, EC2, RDS, S3, CodeDeploy)

- Recommended smartphones based on user history using collaborative filtering and SentenceTransformers, improving Top-5 recall by 18%. Deployed LLM-powered APIs on multi-zone AWS EKS, cutting latency to <300ms. Enabled real-time model updates via CI/CD with AWS CodeDeploy.

Prediction Model for Obstructive Sleep Apnea from Facial Depth Maps | Python, CNN, TensorFlow Keras, VGG-19

- Built a full ML pipeline to detect Obstructive Sleep Apnea (OSA) from facial depth maps using VGG-19 and TensorFlow. Applied CNN architectures, OpenCV preprocessing, and embedding-based classification. Handled training, evaluation, and deployment lifecycle with Pickle serialization and GUI visualization. Tuned model hyperparameters and visualized learning curves using Matplotlib.

TECHNICAL SKILLS

Cloud & DevOps: AWS (EC2, RDS, S3, EKS), Azure, GCP, Terraform, Docker, Kubernetes, GitHub Actions, Jenkins
Machine Learning: Transformers (HuggingFace), PyTorch, TensorFlow, Scikit-learn, LightGBM, XGBoost, OpenCV, Pandas, NumPy, SentenceTransformers, DVC, Weights & Biases
Languages: Python, Java, C++, C, SQL, JavaScript
Frameworks: ASP.NET Core, Node.js, Angular, React.js
Security & APIs: OAuth2, JWT, RESTful APIs, SSL
ML Ops Tools: MLFlow, DVC, Weights Biases, Airflow, Kubeflow
Visualization: Power BI, Tableau, Chart.js, Matplotlib
Data: SQL Server, PostgreSQL, BigQuery, Pandas, NumPy